correcting means for determining a fading vector and performing transmission path correction;

tentative decision means for deciding on a symbol from the transmission path corrected signal;

weighting means for multiplying a weighting coefficient to the tentative decision symbol;

spreading means for respreading the tentative decision symbol by multiplying the spreading code of the user; and

decorrecting means for determining a replica signal by multiplying the transmission path properties to the respread signal; and

wherein said weighting means outputs a weighting coefficient $\lambda_A{}^Q$ of the pilots bits, a weighting coefficient $\lambda_B{}^Q$ of the other control bits and a weighting coefficient λ^I of the data bits as separately derived values.

13. (Amended) An interference canceller unit in a subtractive interference canceller for digital radio communications, comprising

adding means for receiving and adding an interference cancellation residual signal and a replica signal from a previous stage;

despreading means for despreading the aforementioned addition signal by multiplying a spreading code of the user;

correcting means for determining a fading vector and performing transmission path correction;

tentative decision means for deciding on a symbol from the transmission path corrected signal;

weighting means for multiplying a weighting coefficient to the tentative decision symbol;

spreading means for respreading the tentative decision symbol by multiplying the spreading code of the user; and

decorrecting means for determining a replica signal by multiplying the transmission path properties to the respread signal; and

wherein said weighting means determines a complex weighting coefficient such as to minimize the power of the interference cancellation residual signal for each channel in each stage.

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20. (Amended) A serial subtractive interference canceller comprising a plurality of stages composed of a plurality of interference canceller units for handling a plurality of users; wherein

a replica signal is prepared by inputting a received signal and a zero value to the interference canceller unit of the first user in the first stage and outputted to the interference canceller unit of the corresponding user in the next stage, and the replica signal is subtracted from the received signal and the result is outputted to the interference canceller unit of the second user;

a replica signal is prepared by inputting a signal subtracting replica signals from the first through previous users from the received signal and a zero value to the interference canceller unit of the second and subsequent users of the first stage, outputted to the

interference canceller unit of the corresponding user in the next stage, and the replica signal is subtracted from the sum of the two inputted signals and the result outputted to the interference canceller unit of the next user;

a replica signal is prepared by inputting an interference cancellation residual signal of the first stage instead of the received signal and the replica signal from the previous stage instead of a zero value to the interference canceller unit of the first user in the second stage, and outputted to the interference canceller unit of the corresponding user in the next stage, and the replica signal is subtracted from the sum of the two inputted signals and the result outputted to the interference canceller unit of the second user; and

a replica signal is prepared and outputted by performing the same procedure until the final stage; and

wherein the interference canceller unit of claim 10 is used.

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24. (Amended) A serial subtractive interference canceller comprising a plurality of stages composed of a plurality of interference canceller units for handling a plurality of users; wherein

a replica signal is prepared by inputting a received signal and a zero value to the interference canceller unit of the first user in the first stage and outputted to the interference canceller unit of the corresponding user in the next stage, and the replica signal is subtracted from the received signal and the result is outputted to the interference canceller unit of the second user;

a replica signal is prepared by inputting a signal subtracting replica signals from the first through previous users from the received signal and a zero value to the interference

canceller unit of the second and subsequent users of the first stage, outputted to the interference canceller unit of the corresponding user in the next stage, and the replica signal is subtracted from the sum of the two inputted signals and the result outputted to the interference canceller unit of the next user;

A12 cont.

a replica signal is prepared by inputting an interference cancellation residual signal of the first stage instead of the received signal and the replica signal from the previous stage instead of a zero value to the interference canceller unit of the first user in the second stage, and outputted to the interference canceller unit of the corresponding user in the next stage, and the replica signal is subtracted from the sum of the two inputted signals and the result outputted to the interference canceller unit of the second user; and

a replica signal is prepared and outputted by performing the same procedure until the final stage; and

wherein the interference canceller unit of claim 13 is used.